With the Author's compts

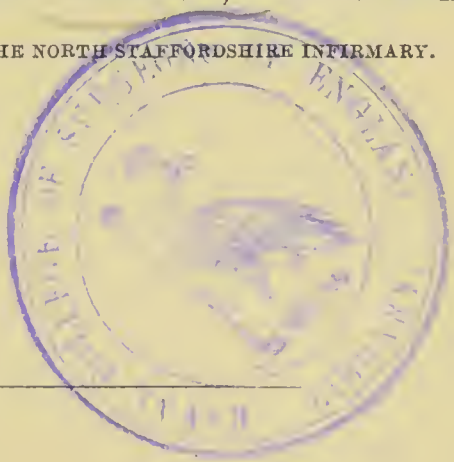
ON THE

OPERATIVE CURE OF HERNIA.

BY

W. DUNNETT SPANTON, F.R.C.S. Edin.

SURGEON TO THE NORTH STAFFORDSHIRE INFIRMARY.



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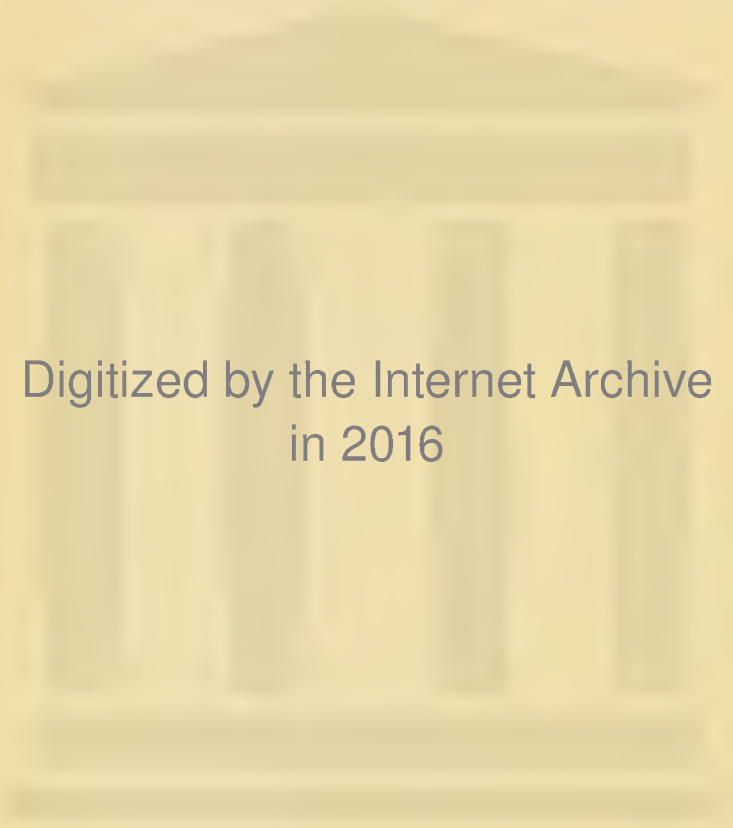

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ON THE

OPERATIVE CURE OF HERNIA.

BY

W. DUNNETT SPANTON, F.R.C.S. Edin.,

Surgeon to the North Staffordshire Infirmary.

If the importance of the subject of the cure of hernia may be gauged by the amount of literature and discussion expended upon it, we may fairly conclude that it has, during the last four or five years, taken rank as one of the prominent surgical subjects of the day. For a long time it was quite a rare event to find any reference to the operative cure of reducible hernia, except an occasional record of a case of Wood's operation; but now that is all changed. And why? Without doubt the introduction of so-called antiseptic surgery has had much to do with this advance; but far more than this has been the removal of the long-standing prejudice on the part of the teacher of surgery against operations of every description for the cure of reducible hernia. As long as surgeons carefully excluded from their lectures and their text-books any commendation of such procedures, it was hardly to be expected that practitioners generally would either advise or adopt them; and still less so when it was no uncommon thing to find an operation of the class in question mentioned, perhaps described, only for the purpose of being condemned. Happily that stage has been passed. Surgeons can no longer shut their eyes to the facts which have been adduced in

favour of the cure of hernia, and we find now a wholesome absence of that special denunciation which was a prominent feature of most works of surgery published only a very few years ago.

The fact is that, as an operation of expediency, that for radical cure of hernia (so-called) has long had a bad name, and has been followed by the usual consequence; and surgical authors, like so many surgical sheep, have followed each other astray, without venturing to find out for themselves the worth or the danger of any of the operations which have from time to time been advocated. For many years the excessive mortality which is known to have followed such operations as that of the ligature of the sac in its various forms, to say nothing of Wood's method, no doubt deterred prudent and conscientious surgeons from what they might consider an unjustifiable risk; and if we come to analyse some of the figures there is certainly grave reason for this hesitation. But before considering that part of the question it may be well to make a few remarks on what we mean by the cure of hernia, and the class of cases in which an operation can be entertained for that object. It is necessary to draw a broad line between the reducible and strangulated forms, of whatever class they may be. Statistics have been given and numerous instances recorded in which a so-called "radical cure" has been effected conjointly with an operation for the relief of strangulation, along with other instances where an operation has been performed of a purely expedient character on an ordinary reducible hernia. This misleading combination was employed by the President of the Surgical Section of the British Medical Association some little time ago, and in this case it is quite clear either that operations for strangulated hernia gain, or that the other class of cases lose by such an arrangement in point of mortality. It is of course utterly impossible in a case of strangulation to say how far a fatal termination may be due to what is done at the time of operation, or how much must be attributed to preceding mischief; and all such cases, therefore, should be classed by themselves. On the other hand, in dealing with an ordinary reducible rupture in a healthy person, if anything does go wrong after operation we may safely assume that it is *propter* as well

as *post hoc*. These cases therefore ought likewise to be considered apart from the others. Some surgeons who have published cases have mixed them up in such a manner as to deprive them of much of their value for statistical purposes. For example, of 16 cases described by Sir W. MacCormac as operations for the radical cure of hernia, only two were simple cases ; in all the others strangulation had occurred. If this confusion be maintained we can hardly hope that the operation for the cure of reducible hernia will ever free itself from the stigma of being accompanied by a high rate of mortality, which such an association is almost certain to convey.

I can very well imagine that many persons who would be quite willing to give a patient the benefit of having the rupture permanently cured when an operation for the relief of strangulation becomes necessary, would hesitate much before submitting anyone in whom the rupture might be a source only of discomfort or inconvenience to the risk of such an attempt. That is intelligible and reasonable enough. But it will not be difficult to show that it is especially to the latter class our attention ought to be directed.

For many years it has been the usual custom at some hospitals to combine with the ordinary operation for strangulation that of ligature of the sac and closure of the hernial ring. Mr. Bryant tells me that the removal of the hernial sac after herniotomy and in difficult cases of irreducible hernia is an operation which he and his colleagues at Guy's have practised for years. At the North Staffordshire Infirmary my colleagues and I have done this for a long time, and with excellent results. It would be tedious to relate cases in support of the practice, because it is, I believe, well recognised as legitimate and safe, but I may say that in the last instance in which I performed this operation, in a case of femoral hernia in an old lady of 76 years of age, under unfavourable conditions so far as concerned the strangulation, her recovery was rapid and complete, and the hernia has not troubled her since. There is no doubt that where it can be done with safety to the patient this operation ought to be practised ; and not only so, but might with advantage be described and laid down as a rule to follow in surgical text-books. There are, of course, many instances met with of

strangulated hernia of all kinds in which it would be quite inadmissible, such, for example, as extreme exhaustion of the patient, where it would be obviously wrong to add an iota to the shock already existing. Where, again, the bowel is in a gangrenous condition, especially if adherent to the sac, it would be more prudent not to attempt it. It is, in fact, one of those operations of which the surgeon must be the judge at the time of its performance. Only it should be the rule rather than the exception. The best method of carrying it out is either to cut away the sac after carefully separating and ligaturing it at the neck, or to add to this the suturing of the pillars of the abdominal ring with silk, catgut, or wire. Each surgeon has his fancy in these matters. I like silk. The advantages of such a course are manifest enough. As soon as the neck of the sac is ligatured, communication between the peritonæal cavity and the external air is effectually shut off, agglutination rapidly takes place, and the probabilities of any septic absorption from the wound are greatly diminished. The approximation of the pillars of the opening aids in causing a more secure contraction, and in this way tends to render the closure more firm and complete. *Per se* there can be nothing in this to add materially to the danger of an ordinary operation ; although in one of my cases, in which I passed the ligature rather wide of the pillars of the opening of an oblique inguinal hernia, so as to pass through the peritonæum itself, there was subsequent peritonitis, and a fatal result ensued. I do not say it was caused by the ligaturing, for the length of time the strangulation had existed, and the weak condition of the patient, were alone quite sufficient to account for it. But it is perhaps well to bear the fact in mind, and not trespass on the peritonæum in these cases without sufficient reason. As a rule the beneficial result obtained in the foregoing class of cases is permanent, and it is usually unnecessary for the patient to wear a truss of any kind. The principle is, of course, applicable to all the ordinary forms of rupture, although far more frequently demanded in inguinal and femoral hernia than any others. There is no difficulty about the operation itself, when once the cause of strangulation is removed. The chief points are to free the sac from its surround-

ings, to take care that the ligature of its neck is perfectly secure, and to make quite sure of this I prefer to transfix before tying it, and to cut away the superfluous mass of peritonæal sac rather than to leave it. There can be no advantage to be gained by allowing it to remain, and where it can be effected with safety the better plan is clearly to take it wholly away. A firmer stump is in this way left to secure the hernial aperture, and to prevent any future recurrence of similar trouble. The pillars of the ring are then to be brought into approximation as far as the nature of the case will allow, taking care to scarify, or, as suggested by Dr. Warren, to cauterise their edges so that union may take place with the adjacent structures.

In some tense, circular rings this is impossible, and had better not be attempted ; but in lax, elastic ones it is best to attempt it—even if the ring be large. The opportunity afforded by a strangulated condition, to effect a solid cure, should also prove an inducement to operate as early as possible in every case of strangulation, without waiting to see how completely it is possible to defeat Nature's efforts by that species of taxis which results in inflammation of the bowel or perhaps sloughing of the sac or omentum.

I had an illustrative case of this kind quite recently. A man of middle age, with a history of a scrotal hernia of long standing, was seized with some of the symptoms of strangulation, but without constipation. Taxis was very freely employed, with the result that he was brought to the hospital with a large suppurating scrotum, which on being opened showed that he had been suffering from an irreducible hernia, and that the efforts to reduce (!) this had caused so much inflammatory action as to lead to the sloughing of the mass of omentum of which the hernia consisted, and the formation of an abscess in the sac. Happily the opening into the peritonæal cavity was securely closed, and the case has progressed well. My own conviction is that if every case of strangulated hernia could be operated on as soon as it is discovered, without the intervention of purgatives, hot baths, taxis and other authorised modes of treatment, there would be a very small mortality indeed from such a cause. But until the public can be taught to understand the reasons of

this, and until surgeons generally, and timid ones particularly, look upon it as a distinct axiom of practice, we must, I suppose, submit to what at present would appear to be the inevitable delay and danger which are ordinarily involved.

To return now to the consideration of the subject of the cure of hernia under the head of what is commonly, but not wisely, termed the radical cure. I have in some former papers[1] advanced what seemed to me cogent reasons why all suitable cases of reducible hernia should be as far as possible not merely relieved, but cured, provided this can be done without undue risk to the sufferer. This is really the vital point in the consideration of this question. Are any of the operations usually performed with this object in view sufficiently safe to warrant their frequent performance? and then again, are they reliable enough to effect the desired purpose, and to render it worth while on the part of the patient to submit to the danger and inconvenience of an operation? An operation of expediency, in order to be fully justifiable, must of course be reasonably safe; and if it can be shown that this is the case, the main difficulty in the way of its more general adoption will be removed. It would be tedious and unprofitable to go far back to produce statistics of operations which are now practically discarded; but it will be proper and useful to see how far the results hitherto of the more recent ones sustain the plea of safety. I have endeavoured to collate the scattered cases reported in the various journals during the last few years—although those recorded represent of course only a portion of those operated on—and the subjoined figures are the result. There are 147 cases operated on by various methods of ligature, with 8 deaths, a mortality of 5·44 per cent. And although this is very different to what we may hope to see, yet even this rate of mortality will bear favourable comparison with that following many other operations of far less surgical importance, which are of every-day occurrence.

Now, it may not be amiss to refer for a moment to some other modern operations commonly performed as those of expediency rather than necessity. Take,

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[1] *British Medical Journal*, 1880, 1881 and 1882.

for example, that of osteotomy for the cure of limb deformity. This is now a well-recognised operation, very frequently practised, and it is well known that death has not very infrequently occurred as a consequence. And yet it is one which is adopted simply for the purpose of making a limb straight which would be oftentimes quite as useful, although less elegant, crooked. The operation has met with opposition it is true, but in spite of all this, it is constantly advised and practised. The cure of nævus, of hæmorrhoids, of hare-lip by operation has in each case its roll of mortality; yet they are practised daily. Again, plastic operations for prolapse of the uterus and vagina, for the relief of an inconvenience merely, have not unfrequently proved fatal; yet there is no desire to discard them on that account. And so of many other operations of a similar class. It is only when the risk assumes undue proportion that we hesitate to operate in all such cases.

This being so, are we not then more fully justified in advising and adopting some operative measures to cure a hernia—a condition not only of inconvenience to its possessor, but a source of mental misery to a large proportion, and an element of danger of the gravest kind? There is a general impression that a truss will effect a cure of a hernia in a large proportion of instances. But we have no very clear evidence of this. Instrument makers will tell you that when once a truss is worn, it is usually worn for life—unless, as too often happens, it helps to bring about strangulation and thus ends its career.

Some ruptures undergo spontaneous cure, no doubt; some few may be cured by the wearing of a truss; but there still remain a large class which are not amenable to any palliative treatment, and seem to demand further measures for their cure. A considerable proportion of adult ruptures are probably the outcome of congenital ones during childhood or youth—small perhaps, or unnoticed until they attain a sufficient size to attract attention; and when the use of a truss can hardly avail in the slightest degree in conducing to a permanent cure.

If these could be dealt with during boyhood, much would be gained. The risks of future strangulation would be entirely averted, the patient's mind relieved

of a burden, and he would become fitted for many occupations which the hernial man is compelled to forego.

In boys and young men, as far as inguinal hernia is concerned, I have seen the most favourable results from my own operation; and I am inclined to look upon this class of patients as those most suitable for it, in whom the results are the most satisfactory both as regards the permanence of the cure, and the safety of its performance. I have never practised it in the case of old men, although there is no reason against doing so that I am aware of. In a few instances I have been asked to operate on gentlemen past middle age; but their high social position and the adequate support afforded by a first-rate truss led me to advise the continuance of its use rather than any operative measures.

Mr. Mitchell Banks has proved himself such an able champion of the open operation by ligature that it would be superfluous for me to advocate its utility; but it may be as well to draw attention to the fact that in its earlier days this operation was attended by a comparatively high rate of mortality—a rate indeed sufficiently formidable to deter cautious surgeons from following it. During the last few years, however, this has been to some extent remedied; and the results which have been published recently are sufficiently good to justify its more general adoption. That this is attributable in large measure to Listerian surgery there can be little doubt; and it is by no means one of the smallest of the innumerable benefits which that principle has conferred on modern surgery.

Mr. Jordan Lloyd has related two cases of excision of sac for inguinal hernia—one died, æt. 50, from pneumonia on the twelfth day; the other, æt. 2, made a good recovery.

Dr. Warren, of Boston, Mass., has recorded a large number of successful cures of hernia of various kinds, by Heaton's method of injecting oak-bark decoction in the neighbourhood of the hernial ring.

When in America recently, I found that several cases had been operated on at the St. Luke's Hospital, New York, with a fair amount of success; but the operation seems to be but little adopted generally—

although ligature and excision of the sac in cases of operation for strangulation is carried out in several of the large hospitals there. So far as I am aware, Heaton's operation has been performed only once in this country, on a patient of Mr. Bryant's, at Guy's Hospital, but the result is not stated.

Last year a paper appeared in the *British Medical Journal* giving an account of "a new operation for the radical cure of hernia," by Mr. W. J. N. Fitzgerald, in which that gentleman describes a method he has employed of subcutaneously suturing the pillars of the abdominal rings. The number of patients operated upon is not given, nor are the results, beyond the statement that the author had "never occasioned a death through the operation." The operation is nothing more than a subcutaneous suturing of the hernial opening in almost precisely the same manner that Mr. John Wood has described in his work on Hernia, as specially adapted for certain cases in which his ordinary operation is less suitable.

There appear to me several objections to this mode of operating—faults rather of omission than commission, however—which I will briefly refer to. In the first place no attempt is made to deal with the hernial sac in any way; and this is, therefore, left free to give future trouble if, as it is pretty certain to, it sees fit.

The neck remains open presumably—a point on which almost all surgeons lay great stress as being a condition almost precluding the hope of an effectual cure. Then the tendinous margins of the ring are brought together by the wire suture, but it is difficult to perceive what there is in this proceeding to cause them to become united. They may be held together by the wire, provided the grip be firm enough and the tendon does not split; but that is a very mechanical and artificial mode of closing an opening in organic tissues. It is significant that Mr. Wood has described a very similar method adopted by himself (p. 118, Wood on Rupture) only in cases in which for some reason he could not perform his ordinary and more reliable operation. I am inclined to think that when Mr. Fitzgerald's experience has extended further, he will find that occlusion of the sac at its neck is of more

importance than at present he is inclined to believe ; and that the mere suture of the pillars of the ring will not yield permanently satisfactory results.

Taking a somewhat opposite view to the preceding, some surgeons maintain that it is sufficient to ligature and cut off short the neck of the hernial sac in almost all cases of inguinal as well as femoral hernia, the object being to obtain a perfectly plane surface of peritonæum over the site of the hernial ring. Probably in many instances this view may be a correct one, and if you can ensure a perfectly flush surface so that the bowel has no *point d'appui* for making a fresh inroad upon the canal, the cure may be both complete and permanent. Still, when the parts are exposed, and a trifling delay enables the surgeon to make the opening so much more secure by bringing together the edges of the opening, there really seems no valid reason for not doing so. The danger is not increased, the abdominal wall is made more perfect, and the chances of success thereby greatly increased. Some pillars are so slender and split so easily that any attempt to stitch them is a failure ; but as a general rule a secure hold can be obtained without difficulty. There appears to be, in fact, much to lose and nothing to gain by relying solely on ligature of the neck of the sac to effect a cure.

We must, however, never lose sight of the fact that we rarely see two hernia cases exactly alike ; and, although we may lay down certain general rules for guidance in the treatment, yet each case will have to be dealt with on its merits. What will apply to a large, lax, thin hernial opening, will certainly not answer for a dense, tight small one, and it must necessarily rest with the surgeon himself to judge from the nature of the condition with which he has to deal what is most likely to succeed. Experience will teach him far more on this head than books or statistics.

Dr. R. McLeod, of Calcutta, operated in 28 cases by ligature, antiseptically, with six deaths. His plan is to isolate the sac up to the internal ring, then ligature it with catgut in three places at intervals of half an inch, cutting off the sac below the lowest ligature. He then stitches the inner pillar and conjoined tendon

to the outer pillar and Poupart's ligament, leaving the neck of the sac as a plug in the inguinal canal. Of the whole number, seventeen were cases of reducible hernia, and among these were two deaths—a large rate of mortality. But besides this, there were five cases in which suppuration and putrefaction took place, so as to require tapping in four of these, and in three others also. The hernia recurred in two out of eight instances where union by first intention took place. The average number of days in hospital was 55. Such results as these do not say much for the safety of the method, and sufficiently show, as the *Lancet* remarks, that "it is not a procedure to be entered upon lightly."

One gentleman (Mr. Walter H. Brown, of Leeds) in recording a successful case of ligature of the neck of the sac and omentum in a femoral hernia of a woman aged 60, gives his reasons for operating as: "first, the patient being weary and discomforted by her ailment, was willing to accept the risks of operation and possible failure after they had been fully explained; second, a fair trial had been given to mechanical support, and the results had been entirely unsuccessful." And I think no one will say these reasons were insufficient, but that, on the contrary, they not only justify, but demand some operative measures being taken to afford relief.

I was somewhat gratified to read in the *Edinburgh Medical Journal* of August 1883, some account of Dr. Neve's experience in India on this subject. The arguments he uses are so forcible and his remarks so apposite, that I venture to reproduce some of them here. Dr. Neve narrates nine cases in which he operated during the year by my method in the Kashmir Mission Hospital, where Dr. Downes had the year before also operated in eight cases successfully. The patients varied in age from 2 months to 50 years, and in only one case was any constitutional disturbance observed, pain was seldom severe, sometimes altogether wanting. Eight of the cases are reported as cured, one recurring. This one was a man who ran away from the hospital the day he was operated on, and only returned two days after, as he could not remove the instrument himself! Recurrence

was hardly surprising under these circumstances; that he survived the recurrence is the only wonder. Notwithstanding, the hernia was, when last seen, only about a quarter the original size. The longest time in hospital was 31 days, and the shortest 8 days. In no case was there any accumulation of pus, sloughing, or dangerous symptoms of any kind. Dr. Neve observed that the hardness remaining at the hernial canal "conveys an impression of great security, such as to make the spot operated on decidedly stronger than some of the parts immediately around." He adds, "Of the obliteration of the sac in this operation, I entertain no doubt whatever." After a comparison between other methods and my own, Dr. Neve concludes by saying, "I am certainly not prepared to think that there can have been or will eventually be recurrence in more than a small proportion of the cases operated on, and hope that my small experience may contribute to show that in Spanton's operation for radical cure of hernia, we have a method devoid of danger of death, almost without risks of any serious results—a method of singular simplicity of detail and ease of application—a method adapted for the congenital hernia of the tube, as for the large tumour and lax tissues of the old, and far more suited than more delicate and perhaps more precise operations for the requirements of country or colonial practice, in which it might well replace the palliative measure of a truss or bandage with which the profession has too long been satisfied."

This independent testimony is the more valuable, inasmuch as Dr. Neve is personally unknown to me, and I have had no communication, direct or indirect, with him.

To sum up: the three cardinal points bearing on the question of the cure of simple hernia may be said to be necessity, safety and efficiency. I have shown both from analogy, as well as from direct evidence, that the first cannot be questioned in those cases which are not amenable to effectual treatment by means of a truss—from whatever cause that inefficiency may proceed—and that we have no more right to permit a patient who consults us concerning a painful physical, and incidentally still more trying mental state, to

continue unrelieved, than we have to refuse to remove an agonising neuroma, or excise a painful joint, on the ground that in neither case is life in jeopardy. Surgery now-a-days consists so largely in the performance of operations for the relief of pain and for the cure of deformity that it would appear most invidious to exclude rupture from the benefits which modern surgery can confer. The annexed tables show very clearly the large number of hernial subjects who die annually from strangulation—the larger proportion of whom ought to be looked upon as dying from a preventible catastrophe.

The best evidence I can afford of its fatality is in Tables I. and III., in which we find that the mean annual rate of mortality for the year 1879, was 45 deaths to every 1,000,000 living; and to make the significance of this more manifest, I may point out that while calculus killed 237 persons in the year 1879; and all malformations (except spina bifida) put together, 619; gout, 682; and all uterine diseases only 1,068—hernia caused the death of 1,119 in the same period (Table II.). And if we examine Table III., we find that 263 deaths occurred during 1879, from operation for strangulated hernia—*i.e.*, nearly one-fourth of the total number of deaths.

TABLE I.

Mean Annual Rate of Mortality in England from Hernia during the 30 *Years*, 1850—1879, *and in each* QUINQUENNIAD *of that period; also the rate of Mortality in the Years* 1877, 1878, *and* 1879.

ANNUAL DEATHS TO 1,000,000 LIVING.

30 Years, 1850-79.	5 Years, 1850-54.	5 Years, 1855-59.	5 Years, 1860-64.	5 Years, 1865-69.	5 Years, 1870-74.	5 Years, 1875-79.	Year, 1877.	Year, 1878.	Year, 1879.
43·2	41·2	43·8	41·4	43·0	44·0	45·8	45	46	45

Annual Report of Registrar General. Table 34.

TABLE II.

Deaths in England from five causes, including Hernia, arranged in the order of their Fatality: and the Proportional Numbers dying from each cause, to 1,000,000 *Deaths from specified causes.*

Causes of Death.	No. of Deaths registered in the Year 1879.	Proportional Number from each cause to 1,000,000 Deaths from specified causes.	
		10 Years, 1869–78.	Year, 1879.
Hernia	1,119	2,049	2,133
Uterus Disease	1,068	2,079	2,035
Gout	682	1,038	1,300
Malformations (Exclusive of Spina Bifida)	619	982	1,180
Calculus	237	436	452

Taken from Tables 33 and 35 (*ibid*).

TABLE III.

Table showing the Number of Deaths from Hernia of all kinds in England during a series of twenty-eight years, and the number of Deaths after Operation.

Year.	Deaths from Hernia at all ages.		Deaths under 5 years.		Total Number of Deaths.	Deaths after Operation.		Proportion of Deaths after Operation to whole Number of Deaths per cent.
	Male.	Female.	Male.	Female.		Male.	Female.	
1852	370	313	65	13	683	No statistics given of operations performed.		
1853	406	373	53	12	779			
1854	407	421	45	11	828			
1855	426	448	43	15	874			
1856	441	407	50	7	848			
1857	414	400	46	13	814			
1858	416	350	42	10	766			
1859	443	319	52	6	762			
1860	418	399	51	10	817	11	14	3·06
1861	408	444	43	9	852	12	13	2·93
1862	405	422	45	9	827	14	21	4·23
1863	424	424	54	8	848	13	19	3·77
1864	409	396	44	11	805	19	15	4·22
1865	463	427	48	17	890	22	22	4·94
1866	465	409	47	11	874	17	23	4·58
1867	467	460	37	15	927	36	44	8·63
1868	461	446	33	10	907	43	48	10·03
1869	457	494	53	15	951	66	80	15·35
1870	487	492	52	5	979	80	100	18·38
1871	519	503	50	10	1022	75	96	16·73
1872	524	489	54	15	1013	90	92	17 96
1873	557	457	66	22	1014	76	78	15·18
1874	512	500	53	15	1012	63	71	13·24
1875	585	549	65	17	1140	83	108	16·75
1876	533	555	63	19	1082	87	106	17·84
1877	565	529	70	16	1094	95	97	17·55
1878	565	582	83	16	1147	101	111	18·48
1879	546	573	55	12	1119	128	135	23·50

TABLE IV.

Table showing the Total Number of In-patient Cases of Strangulated Hernia admitted in 11 *Hospitals during a series of years, with the Number of Operations and Rate of Mortality.*

Name of Hospital.	Year.	Total No. of Cases admitted.	No. of Operations.	Recovered.	Died.	Rate of Mortality of Operations per cent.
St. Thomas's	1866	27	16	9	7	43·75
,, ...	1867	24	12	6	6	50·00
,, ...	1868	26	12	10	2	16·66
,, ...	1869	25	8	4	4	50·00
,, ...	1870	27	14	6	8	57·14
,, ...	1871	23	13	6	7	53·84
,, ...	1872	44	15	7	8	53·33
,, ...	1873	29	14	6	8	57·14
,, ...	1874	33	16	8	8	50·00
,, ...	1875	41	23	9	14	60·86
,, ...	1876	40	16	5	11	68·75
,, ...	1877	57	30	19	11	36·66
,, ...	1878	53	24	14	10	41·66
Total	13 Yrs.	449	213	109	104	Average 48·82
St. Bartholomew's	1865	57	30	19	11	36·66
,, ...	1866	56	23	15	8	34·78
,, ...	1867	55	20	7	13	65·00
,, ...	1868	47	27	12	15	55·55
,, ...	*1869	49	34	25	9	26·47
,, ...	*1870	43	26	16	10	38·46
,, ...	1871	57	31	20	11	35·48
,, ...	*1872	77	36	20	16	44·44
,, ...	*1873	58	28	23	5	17·85
,, ...	*1874	67	28	15	13	46·42
,, ...	1875	66	30	14	16	53·33
,, ...	1876	69	24	17	7	29·17
,, ...	1877	61	28	14	14	50·00
,, ...	1878	58	18	12	6	33·33
,, ...	1879	67	32	22	10	31·25
Total	15 Yrs.	887	415	251	164	Average 39·51

* In each of these years some were "Discharged unrelieved," after Operation—in all 14.

TABLE IV.—(*Continued.*)

Name of Hospital.	Year.	Total No. of Cases admitted.	No. of Operations.	Recovered.	Died.	Rate of Mortality of Operations per cent.
Guy's Hospital	1861 to 1868 inclusive	424	143	70	73	51·04
,, ...	1869	not given	—	—	—	—
,, ...	1870	,,	39	27	12	30·76
,, ...	1871	,,	44	28	16	36·36
,, ...	1872	51	43	33	10	23·25
,, ...	1873	40	38	24	14	36·84
,, ...	1874	not given	25	13	12	48·00
,, ...	1875	,,	22	15	7	31·81
,, ...	1876	,,	30	17	13	43·33
,, ...	1877	,,	31	21	10	32·25
,, ...	1878	,,	26	21	5	19·30
Total	17 Yrs.		441	269	172	Average 39·00
St. George's	1866	40	16	11	5	31·25
,, ...	1867	39	17	11	6	35·29
,, ...	1868	43	22	14	8	36·36
,, ...	1869	22	20	12	8	40·00
,, ...	1870	33	15	6	9	60·00
,, ...	1871	not	20	12	8	40·00
,, ...	1872	given	21	12	9	42·85
,, ...	1873	20	16	11	5	31·25
,, ...	1874	16	6	3	3	50·00
,, ...	1875	22	14	9	5	35·71
,, ...	1876	29	15	5	10	66·66
,, ...	1877	28	18	9	9	50·00
,, ...	1878	29	13	5	8	61·53
Total	13 Yrs.	321	213	120	93	Average 43·66
Middlesex	1867	18	6	5	1	16·66
,, ...	1868	20	10	18	2	20·00
,, ...	1869	19	11	8	3	27·27
,, ...	1870	21	12	7	5	41·66
,, ...	1871	21	13	10	3	23·07
,, ...	1872	13	8	6	2	25·00
,, ...	1873	18	12	10	2	16·66
,, ...	1874	22	13	7	6	46·15
,, ...	1875	17	6	4	2	33·33
Total	9 Yrs.	169	91	75	26	Average 28·57

TABLE IV.—(*Continued.*)

Name of Hospital.	Year.	Total No. of Cases admitted.	No. of Operations.	Recovered.	Died.	Rate of Mortality of Operations per cent.
London Hospital	1863	88	27	15	12	44·44
,, ,, ...	1864	65	24	13	11	45·83
,, ,, ...	1865	not given	29	18	11	39·93
,, ,, ...	1866	,,	19	14	5	26·31
Total	4 Yrs.		99	60	39	Average 39·39
Bristol Royal Infirmary ...	1877		7	6	1	14·28
,, ...	1878		23	14	9	39·13
,, ...	1879					
Total	3 Yrs.		30	20	10	Average 33·33
North Staffordshire Infirmary	1862	9	1	—	1	
,, ,,	1863	5	2	1	1	
,, ,,	1864	5	2	1	1	
,, ,,	1865	8	1	—	1	
,, ,,	1866	5	1	1	—	
,, ,,	1867	5	1	—	1	
,, ,,	1868	8	4	3	1	
,, ,,	1869	5	3	2	1	
,, ,,	1870	4	1	1	—	
,, ,,	1871	3	0	—	—	
,, ,,	1872	0	0	—	—	
,, ,,	1873	5	2	2	—	
,, ,,	1874	3	3	2	1	
,, ,,	1875	1	0	—	—	
,, ,,	1876	5	4	3	1	
,, ,,	1877	5	2	2	—	
,, ,,	1878	7	5	3	2	
,, ,,	1879	19	5	4	1	
,, ,,	1880	8	2	2	0	
Total	19 Yrs.	110	39	27	12	Average 30·76
Liverpool Royal Infirmary ...	1870	15	6	2	4	66·6
,, ,,	1871	20	8	2	6	75·0
,, ,,	1872	13	6	2	4	66·6
,, ,,	1873	15	4	2	2	50·0
,, ,,	1874	10	4	2	2	50·0
,, ,,	1875	14	7	3	4	57·1
,, ,,	1876	20	5	4	1	20·0
,, ,,	1877	25	11	5	6	54·5
,, ,,	1878	21	7	6	1	14·2
,, ,,	1879	25	13	12	1	7·6
,, ,,	1880	23	8	7	1	12·5
Total	11 Yrs.	201	79	47	32	Average 40·50*

* Mr. Mitchell Banks tells me that the mortality since 1880 has greatly diminished.

TABLE IV.—(*Continued.*)

Name of Hospital.	Year.	Total No. of Cases admitted.	No. of Operations.	Recovered.	Died.	Rate of Mortality of Operations per cent.
Leeds General Infirmary ...	1870		9	6	3	33·33
,, ,, ...	1871		9	7	2	22·20
,, ,, ...	1872		14	8	6	42·86
,, ,, ...	1873		5	2	3	60·00
,, ,, ...	1874		11	4	7	63·64
,, ,, ...	1875		10	4	6	60·00
,, ,, ...	1876		4	2	2	50·00
,, ,, ...	1877		12	7	5	41·70
,, ,, ...	1878		7	5	2	28·57
,, ,, ...	1879		7	6	1	14·30
,, ,, ...	1880		8	3	5	62·50
Total	11 Yrs.		96	54	42	Average 43·61
Manchester Royal Infirmary	1870	12	7	5	2	28·57
,, ,,	1871	25	9	2	7	77·77
,, ,,	1872	27	11	2	9	81·81
,, ,,	1873	24	16	4	12	75·00
,, ,,	1874	23	10	5	5	50·00
,, ,,	1875	22	9	3	6	66·66
,, ,,	1876	31	14	5	9	64·28
,, ,,	1877	35	16	7	9	56·25
,, ,,	1878	44	19	9	10	52·63
,, ,,	1879	43	24	15	9	37·50
,, ,,	1880	33	19	9	10	52·63
Total	11 Yrs.	319	154	66	88	Average 57·14

TABLE V.

Summary of Returns from eleven Hospitals, showing Number of Operations for Strangulated Hernia, Number of Deaths, and Average Rate of Mortality.

Name of Hospital.	Number of Operations.	Number of Deaths.	Average Mortality per cent.
St. Thomas's	213	104	48·82
St. Bartholomew's	415	164	39·51
Guy's	441	172	39·00
St. George's	213	93	43·66
Middlesex	91	26	28·57
London Hospital	99	39	39·39
Bristol Royal Infirmary ...	30	10	33·33
Nth. Staffordshire Infirmary	39	12	30·76
Liverpool Royal Infirmary	79	32	40·50
Leeds Infirmary	96	42	43·61
Manchester Royal Infirmary	154	88	57·14
Total	1870	782	41·80

In Table IV. and Table V. it will be observed that the average rate of mortality after operation, in eleven large hospitals, taken from 1,870 cases, with 782 deaths, is 41·80 per cent. This shows very clearly the extreme fatality of those cases which have to be submitted to operation for strangulation.

If there existed no reducible hernia, there would be comparatively few strangulated ones; and if trusses were unknown, although there might be more instances of strangulation, I quite believe there would be fewer proportionate deaths from it. How common it is to see among working men and women an ill-fitting truss, not unfrequently upside down—rubbing on a descended rupture, and ready when strangulation takes place to irritate and inflame the constricted bowel! When we meet with such cases, the surgeon knows only too well that his prognosis must be unfavourable, and that the unlucky truss has done its worst to vitiate the beneficial results of any operation performed for the relief of the strangulation. Truss dangers afford therefore a strong argument in favour of operative measures while a permanent cure can be safely effected. Practically, a hernial subject is an unsound one, and cannot pass a medical examination for any public service; nor will a truss avail him in the least to overcome this drawback. But a curative operation will. One of my cases was that of a boy who was committed to an industrial school, but, on account of a rupture, according to the rules of the institution he was inadmissible. It occurred to me therefore to cure the boy first, and let him be admitted afterwards. This was done more than five years ago, and the lad has worked on the school farm, has become a useful, steady working lad, instead of the alternative course of being sent to prison or among the young criminals of a reformatory.

Dr. Barton has related a case in which he operated on a young gentleman who had been rejected at the physical examination at Sandhurst on account of an inguinal hernia, and was afterwards admitted.

An instance occurred to me last year in which a gentleman of position consulted me on account of his only son, about six months old, who had a rather large inguinal rupture. The child had worn a truss, but being a noisy, roaring infant it was not of the

slightest use. The father said to me that he would not have a child of his "not perfect," if by any means he could be made so, and expressed a strong wish to have an operation performed for the cure of the hernia. In February last, I operated by my usual method; at the same time circumcising the child for a tight phimosis, which had been the cause of the rupture without doubt—and I have heard lately that the result has been very satisfactory. Now, in this instance, the necessity arose from the utter uselessness of a truss, and from the full recognition on the part of the parent of his responsibility towards his young child. He now has the satisfaction of knowing that he has done his duty, and has had his child made "physically" perfect. I ought to add that the surgeon in whose charge the case was recognised his responsibility in the matter with that amount of moral courage which so many lack, by advising the performance of the operation even in the case of a son and heir.

Of the second element, that of *safety*, I think I need only say that up to the present time no case has come to my knowledge in which death has resulted from the performance of my operation, nor have I seen or heard of a single case in which symptoms of an alarming nature have been attributable to it. No instance of general peritonitis, of erysipelas, of pyæmia or septicæmia, or any other indication of blood poisoning has, so far as I am aware, been observed. The operation has been performed at least a hundred times by different surgeons, and there are not many operations of the same degree of gravity of which it can be said that more than a hundred have been performed in different parts of the world without a single fatality. It may therefore be looked upon as a safe operation.

Lastly, as to its *efficiency*. Some captious persons seem to think that unless an operation can restore the abdominal walls to the same condition as they ought to have presented if the sufferer had never had a hernia at all, it cannot be called efficient. But surely this is expecting a little too much. Will an operation for harelip or cleft palate do as much? and yet these are somewhat analogous conditions. We do not for a moment pretend to say that after an operation—especially a cutting operation—any part of the body

can present a perfectly normal appearance, but we do contend that in some instances the hernial rings are rendered tougher and firmer after operation than even in the normal state, and some of the patients who have been shown on various occasions have exhibited this extra-normal soundness. What is usually meant by being efficient is, I take it, that a rupture which formerly came down of its own accord does so no longer under any ordinary provocation, and that artificial support of any description is not required; that, moreover, this condition is not only temporary after the operation, but permanent—unless or until a new and altogether independent rupture may take place. Now, I believe this efficiency is ensured in all those cases in which an operation is a successful one. Of course, a certain proportion of them will fail, not entirely perhaps, but to a greater or less degree, and it is difficult to estimate the exact ratio of these failures. So many are not seen after a time, although the failures are the more likely to show themselves again so long as the normal ingratitude of hospital patients remains at its perennial low ebb, and the cured ones are "therewith content."

In several of my cases which I have shown at meetings of the British Medical Association and elsewhere, it has been almost impossible to distinguish any evidence of an operation having been performed without careful scrutiny; and in most of them no truss was worn. In some, the length of time which has elapsed is nearly five years, and I have found that where the cure is perfect at the end of twelve months, it remains so, provided it has fair play. It is well never to be too hasty in assuming that an unpromising looking case is about to prove a complete failure. Some I have seen of this kind have turned out in the end as satisfactory as possible. The thickening and induration around the hernial canal seems sometimes to increase as time goes on, and with the aid of a light support an effectual cure not unfrequently is the result.

The father of a child upon whom I operated more than two years ago wrote to me recently saying, "My impression is that the case is a thorough cure. Any way it is 100 per cent. better than before your operation." This is a practical way of expressing his view of the efficiency of what was done, and might be

applied to some of those which could not strictly speaking be classed as cured.

If a man is enabled to perform work which, either with or without a truss, he was quite unfit for before, that surely is an immense advantage. And this may not unfrequently be done, even when a complete cure has not taken place. A few failures need not dishearten us; a few successes may well encourage us; and if only the proportion between the two be something like what is considered a reasonable one when applied to other operations, no surgeon need fear the responsibility of advising operative measures. There can be little doubt that the day is not far distant when the operations I have indicated will become far more general than they are now—adding thereby to the general sum total of human comfort and to the saving of valuable lives.

I have already described elsewhere the operation which I usually practise, and which presents no difficulties in its performance. It is needful to take up a sufficiently secure hold on the pillars of the abdominal rings, at the same time avoiding any interference with the general cavity of the peritonæum. As soon as the first turn is made, the neck of the sac is closed, and it is retained in this state by means of the strephotome until firm union takes place along the track of the canal. It has been objected by some surgeons that the proceeding is "occult," and this is to a certain extent true. When, however, the finger is introduced under the skin, it is surprising how accurately the parts around can be felt, and the exact position of the vessels and adjacent structures be clearly defined. For this reason, the operation is one which can be as exactly performed as some of those which are open, and we avoid some of the drawbacks incidental to the latter. Hæmorrhage is by no means trivial in some of the cutting operations; free suppuration is tolerably frequent, and in almost all, a large unsightly cicatrix is left, at the site of which the abdominal parietes are considerably weakened even in those where the result has been successful. In other instances which have come under my observation, where this operation has been practised, and failed, the condition of the patient has been made worse than it was prior to anything being done; a large yielding broad cicatrix has been left, offering

very slight resistance to the pressure of the hernia, and permitting its descent to an extent far worse than it had been previously. Whatever defects may be alleged against my operation, I do not remember a single instance in which, when it has failed to effect a cure, matters have been made any worse by it. Failure in effecting a cure is one thing, but to make the patient worse than he was originally is quite another, and of course such a contingency must always be borne in mind.

Each operation has its sphere, and while I prefer my own for young patients, and for moderate sized herniæ of the inguinal class, I am inclined to think that for femoral and umbilical cases generally, and for inguinal ruptures in elderly people, and of unusual size, it will be found best to cut down upon them and treat them by some form of ligature.

In all these cases, the risks as well as the advantages of an operation ought to be clearly explained to the friends of the patient with whom the decision as to its performance should rest.

In the foregoing remarks, reference has chiefly been made to the inguinal form of rupture—to which my operation is principally suited—but other forms of hernia are equally amenable to cure, and the same arguments which apply to one form are equally applicable to another. Among these the umbilical ought specially to be mentioned. There are few conditions which entail greater discomfort or lead to more constant danger than a large exomphalos, but happily this is an infirmity which can be effectually cured by operative measures. The operative cure of exomphalos appears to have been first advocated and practised by Barwell in 1861. The operation he describes is the same as that now usually practised, opening the sac, removing any omentum or fat, if necessary, with the sac itself, and then stitching the edges of the opening, paring them if it appears necessary. Many other surgeons have followed, and although reliable statistics are wanting, the results seem to have been very satisfactory. The last patient on whom I performed this operation was enormously fat, as most of them are, with a very large hernia more or less adherent to the sac. I removed a large piece of omentum and the whole of the sac, which was securely ligatured and the

opening stitched after paring the edges. The result was perfect.

Although my instrument can be, and has been used to remedy this condition, it seems to me the best method is that of ligature in some form or other. Where the omentum is adherent or bulky it is best to remove it, and similarly with regard to the sac, and then to bring together the edges of the hernial opening. Where this is small, it suffices to put a ligature round the neck of the sac and cut it off, and suture the ring as described by Mr. Mitchell Banks. The result is usually satisfactory, and the relief to the patient very great. In femoral and in ventral hernia, too, the ligature is most valuable, and it has now been employed in a sufficient number of cases to warrant more general adoption. It is unnecessary for me to enlarge on this, as it has been already fully considered by others who have written on this subject, and whose testimony is almost universally favourable. Femoral hernia is, as a rule, however, smaller, and more amenable to relief by trusses than any other form, and I have seen cases which have disappeared under the use of a proper truss. But this circumstance in no way invalidates the argument I have before maintained in favour of operation whenever the nature of the case seems to demand it.

Having said so much in favour of operative measures, it must not be inferred that they are advocated for universal and indiscriminate adoption. Nothing of the kind. Let the general rules of surgery apply to this particular branch as to others, without fear or favour, is all we ask. Of course, a patient suffering from any serious chronic disease, from habitual cough, or other ailment which would contra-indicate any ordinary surgical operation would be considered equally unfitted for this. And in many instances it is desirable to prepare the patient for what he has to undergo by a brief rest, a gentle purge, and careful dieting; but in children little preparatory treatment is needed. They do well, as a rule, under any circumstances.

The chief sources of danger are to be found in some of the forms of inflammatory action, peritonitis, diffuse cellulitis, or orchitis, and in septicæmia or hæmorrhage. The last I have not yet seen, although in one instance I nearly transfixed the internal epigastric artery. It

ran in an abnormal course round the internal abdominal ring, but I was enabled clearly to define it with my finger in the canal subcutaneously, and in this manner avoided what might have proved an awkward *contretemps* by pushing the artery aside with my finger while passing the instrument (strephotome) through the pillars of the ring.

In some of my cases which have been recorded, sharp orchitis with considerable œdema of the scrotum has taken place. This, within certain limits, is not to be deprecated, as it shows that the spermatic cord has been tightly gripped by the closure of the canal, and no ultimate harm arises from it. I have met with localized cellulitis in two or three instances, which resulted in free suppuration along the track of the instrument. In one this was clearly occasioned by the restlessness of the patient, with a strumous habit. No further harm resulted, however, than delay in convalescence; although in one case the free suppuration clearly prevented any adhesive union, and caused the operation to be unsuccessful. In no instance have I seen general peritonitis after my own operation, and this ought, humanly speaking, never to happen. If the instrument be so introduced as to close the neck of the sac at the same time that the walls of the inguinal canal are approximated, the general peritonæal cavity is effectually shut off just as it is by passing a ligature round it, and no septic fluid can, in the ordinary course of events, find its way in. The exercise of care in manipulation will do much to exclude the possibility of such a serious complication as peritonitis would prove to be; and the adoption of every possible antiseptic precaution is, of course, essential.

These are the chief dangers; but there are some inconveniences observed sometimes which deserve brief mention. One is the rather frequent occurrence of retention of urine. This lasts only a day or two, and is, of course, at once relieved by the use of the catheter. I do not know why it should be so, but the frequency of its occurrence is too great to be accidental.

Pain is often rather considerable; usually it is very trivial, but sometimes requiring free use of sedatives. I am disposed to think it must be due to the inclusion of some small nerve in the parts compressed by the instrument, for as soon as this is removed there is

seldom any further pain complained of. In very young children the difficulty of keeping the dressings dry has led me to adopt the alternative of not making the attempt, but to keep the instrument *in situ* constantly oiled with eucalyptus or carbolic oil and leave it open. Cases so treated recovered as quickly and as certainly as any others. Sometimes if the screw be too short, the point of it may press unduly upon the testis, or on the spermatic cord of the same side, and for this reason it it always preferable to use one rather too long than too short, and to take care in bandaging to place the pad over the site of the external abdominal ring, rather than over the scrotum. In all my cases I remember only one instance where the bowel descended while the screw instrument was in position. In this case no harm was done ; the child was a cross, loud crying one, and the hold on the internal pillar gave way. But the instrument was at once removed, and a second operation subsequently performed which resulted in complete cure.

On one occasion where the operation was quite successful in curing an oblique inguinal rupture, so much thinning of the abdominal wall took place over the situation of the internal abdominal ring that a fresh direct hernia afterwards formed there. This appeared to be an illustration of one of the reasons advanced by some writers against all operative measures, viz., the inability of certain abdomens to find room for their contents, so that they must protude somewhere. But even in this case the small direct hernia was easily amenable to control by a light truss, whereas what it replaced was quite unmanageable.

These constitute, I think, the principal drawbacks to the operation, and it will be acknowledged that they are trivial compared to many which might be named, associated with other and less important surgical proceedings. But I have been anxions not to exaggerate the advantages on the one hand, nor to extenuate the dangers or difficultics on the other, even at the risk of being unnecessarily prolix.

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